What is claimed is:

1. An anode comprising:

a porous ceramic material;

at least an additional ceramic material which may be the same or different from the porous ceramic material, a metal, or both; and

at least one carbonaceous compound formed by exposing the anode material to a hydrocarbon having more than one carbon atom.

2. The anode as claimed in claim 1, wherein the porous ceramic material is selected from the group consisting of YSZ, Gc- and Sm-doped ceria (10 to 100 wt%), Sc-doped ZrO_2 (up to 100 wt%), doped $LaGaMnO_x$, and mixtures thereof.

3. The anode as claimed in claim 2, wherein the porous ceramic material is YSZ.

4. The anode as claimed in claim 1, wherein the anode contains a metal in an amount less than about 20% by weight, based on the total weight of the anode.

5. The anode as claimed in claim 4, wherein the amount of the metal is less than about 15% by weight, based on the total weight of the anode.

6. The anode as claimed in claim 4, wherein the amount of the metal is less than about 10% by weight, based on the total weight of the anode.

7. The anode as claimed in claim 1, wherein the anode comprises substantially no metal.

8. The anode as claimed in claim 1, wherein the additional ceramic material is selected from the group consisting of ceria, doped ceria such

as Gd or Sm-doped ceria, $LaCrO_3$, $SrTiO_3$, Y-doped $SrTiO_3$, Sr-doped $LaCrO_3$, and mixtures thereof.

9. The anode as claimed in claim 8, wherein the additional ceramic material is ceria.

10. The anode as claimed in claim 1, wherein the at least one carbonaceous compound is a polyaromatic compound.

11. A method of making an anode comprising:

forming a porous ceramic material;

adding at least an additional ceramic material that may be the same as or different from the porous ceramic material, a metal, or both to the porous ceramic material; and

contacting the resulting mixture with a hydrocarbon having greater than one carbon atom for a period of time sufficient to form carbonaceous deposits on or in the anode.

12. The method according to claim 11, therein the mixture of the porous ceramic material and the at least an additional ceramic material, metal or both are heated at a temperature within the range of from about 300 to about 700°C prior to contacting with the hydrocarbon.

13. The method according to claim 11, wherein the porous ceramic material is prepared by:

forming a two-layer green tape comprising YSZ; and

sintering the green tape at a temperature within the range of from about 1,350 to about 1,650°C.

14. The method according to claim 11, wherein contacting the mixture of porous ceramic material and the at least an additional ceramic material, metal or both with a hydrocarbon having more than one carbon atom

comprises contacting the mixture with n-butane at about 600 to about 800°C for about 1 minute to about 24 hours.

15. A solid oxide fuel cell comprising:
the anode of claim 1;
a cathode; and
an electrolyte disposed at least partially between the cathode and the anode.

16. The solid oxide fuel cell as claimed in claim 15, wherein the cathode is comprised of a material selected from the group consisting of Sr-doped $LaMnO_3$, $LaFeO_3$, $LaCoO_3$, metals selected from Fe and Ag, and mixtures thereof.

17. The solid oxide fuel cell as claimed in claim 15, wherein the electrolyte is selected from the group consisting of YSZ, Sc-doped ZrO_2, Gd- and Sm-doped CeO_2, LaGaMnOx, and mixtures thereof.

18. The solid oxide fuel cell as claimed in claim 15, wherein the porous ceramic material of the anode is selected from the group consisting of YSZ, Gc- and Sm-doped ceria (10 to 100 wt%), Sc-doped ZrO_2 (up to 100 wt%), doped $LaGaMnO_x$, and mixtures thereof.

19. The solid oxide fuel cell as claimed in claim 18, wherein the porous ceramic material is YSZ.

20. The solid oxide fuel cell as claimed in claim 15, wherein the anode contains a metal in an amount less than about 10% by weight, based on the total weight of the anode.

21. The solid oxide fuel cell as claimed in claim 15, wherein the anode comprises substantially no metal.

22. The solid oxide fuel cell as claimed in claim 15, wherein the additional ceramic material in the anode is selected from the group consisting of ceria, doped ceria such as Gd or Sm-doped ceria, $LaCrO_3$, $SrTiO_3$, Y-doped $SrTiO_3$, Sr-doped $LaCrO_3$, and mixtures thereof.

23. The solid oxide fuel cell as claimed in claim 22, wherein the additional ceramic material is ceria.

24. The solid oxide fuel cell as claimed in claim 23, wherein the at least one carbonaceous compound in the anode is a polyaromatic compound.

25. A method of making a solid oxide fuel cell comprising:

forming a two-layer green tape comprising an electrolyte material;

sintering the green tape at a temperature within the range of from about 1,350 to about 1,650°C to form a porous material of electrolyte material having a dense side and a porous side;

forming a cathode on the dense side of the electrolyte material by applying a cathode composition to the dense side and calcining ;

forming an anode by impregnating the porous side of the porous material of electrolyte material with a ceramic material, a metal, or both; and

contacting the resulting anode with a hydrocarbon having greater than one carbon atom for a period of time sufficient to form carbonaceous deposits on the matrix.

26. The method according to claim 25, wherein calcination of the cathode material takes place at a temperature within the range of from about 1,000 to about 1,300°C.

27. The method according to claim 25, wherein forming the anode further comprises heating the mixture of the porous electrolyte material and the at least a ceramic material, metal or both at a temperature within the range of from about 300 to about 700°C.

28. The method according to claim 25, wherein the green tape is sintered at a temperature within the range of from about 1,500 to about 1,550°C.

29. The method according to claim 25, wherein contacting the mixture of porous electrolyte material and the at least a ceramic material, metal or both with a hydrocarbon having more than one carbon atom comprises contacting the mixture with n-butane at about 600 to about 800°C for about 1 minute to about 24 hours.

30. The method according to claim 25, wherein the electrolyte material is YSZ.